7-3 The student will demonstrate an understanding of the functions and interconnections of the major human body systems, including the breakdown in structure or function that disease causes. (Life Science)

Key Concepts:
Levels of Organization: cells, tissues, organs, and systems
Types of body tissues: nerve, muscle, epithelial, connective
Systems: circulatory, digestive, endocrine, excretory (urinary), immune, integumentary (skin), muscular, nervous, reproductive, respiratory, and skeletal
Disease: Infectious diseases, pathogens, noninfectious disease

Supporting Web Sites

National Center for Infectious Diseases
www.cdc.gov/NCIDOD
This web site allows students to study various infectious diseases which attack the human body. It also allows students to research emerging infectious diseases.
7-3.4

Body Quest
http://library.thinkquest.org/5777/dig1.htm
This site permits students to explore the anatomy of the various organs and systems of the human body.
7-3.2

Human Anatomy on Line
http://www.innerbody.com/htm/body.html
At this site students can explore the various systems of the human body. It also contains animations of how the organs within a system work together to perform specific functions.
7-3.2 and 7-3.3

The Human Body
http://www.medtropolis.com/VBody.asp
Site which provides students with virtual diagrams of various organs and systems in the human body.
7-3.2

Basic Anatomy-Tissues and Organs
http://web.jjay.cuny.edu/~acarpi/NSC/14-anatomy.htm
General description of relationship between tissues and organs. Diagrams are provided for the students.
7-3.1

BUPA
www.bupa.co.uk/health_information/html/organ/

Excellent site which shows relationship between organs and systems of the human body. Good graphics are found at this site.
7-3.2

Infectious Diseases and Their Treatments
www.schoolscience.co.uk/content/4/biology/abpil/diseases.index.html
Presentation on diseases caused by bacteria, fungi, viruses and protozoa.
7-3.2

DMOZ
http://dmoz.org/Kids_and_Teens/School_Time/Science
underscore after Kids, and, and School; go to Living Things, then Humans
This site provides links between various systems (circulatory, nervous, and skeletal) and infectious and non-infectious diseases.
7-3.3 and 7-3.4

National Library of Medicine
www.nlm.nih.gov
This site provides information about infectious and non-infectious disease (systems, causes, treatments, etc.) Perhaps the most complete information available.
7-3.4

Suggested Literature

Ford, Michael Thomas. The Voices of AIDS. Morrow (1996)
IBSN:0-688.05322
Lexile Level 1010L
Personal stories about HIV/AIDS and how the disease affected young people's lives. This book is appropriate for middles school students and higher.
7-3.4

Sanderman, Anna. Bones. Millbrook (1996)
ISBN 1-56294-621-8
Students can learn about the relationships between the human skeleton, joints and muscles.
7-3.3

Burnie, David. The Concise Encyclopedia of the Human Body. DK Publishing (1996)
ISBN:0-7894-0204-1
Excellent reference guide to student questions about the human body. This guide also includes tables of infectious and non-infectious diseases.
7-3.2, 7-3.3, and 7-3.4

Sanderman, Anna. Blood. Copper Beach/Millbrook (1997)
ISBN: 0-761-0477-0
This book explains the relationship between the heart, lungs, and blood vessels. It also answers questions of "how" and "why" that students ask about the circulatory system.

Simon, Segmore. The Brain: Our Nervous System. Murrow Junion Books (1998)
ISBN:0-688-14641-4
This book takes students on a tour of the brain and the processes that occur there. It also explains the relationships between the nerve cells, axons, and synapse regions.
7-3.2

McPherson, Stephanie S. Jonas Salk: Conquering Polio. Lerner Publications (2001).
ISBN:0-8225-4964-6
This book describes the research of Dr. Jonas Salk in finally producing a vaccine to prevent the dreaded disease polio. It explains how he was dependent on existing research and how new technology enabled him to produce his vaccine.

Walker, Richard. DK Guide to the Human Body. DK Publishing (2001)
Trade ISBN:0-7894-7388-7
This book take the student on a view of the human body from the microscope to the macroscopic level through the use of x-rays, and MRI and CT scans. These images are helpful in explaining the functions of the human body.
7-3.1 and 7-3.3

Davidson, Sue and Morgan, Ben. Human Body Revealed. DK Publishing. (2003).
Trade ISBN: 0-7894-8882-5
High quality and quantity of images of the human body. Reader is able to "peel away" layers, showing the interactions among the body systems.
7-3.3

Kowalski, Kathiann M. . Attack of the Super Bugs: The Crisis of Drug-Resistant Diseases. Enslow Publishers.
Library ISBN:0-7660-2400-8
This book describes the rise of the super bug (bacteria) which are becoming resistant drugs which have been used to fight certain diseases. Case studies are presented concerning research being done on these "super bugs".
7-3.4

Silverstein, Alvine and Virginia and Nunn, Laura S. . Cancer. Twenty-First Century Books/Lerner Publishing Group. (2005).
Library ISBN:0-7613-2833-5
Different types of cancer are explained in this book. It also describes how these cancers are found and treated.
7-3.4

Suggested Streamline Video

Greatest Discoveries with Bill Nye: Medicine
This video covers many areas of Life Science including early studies in anatomy. It focuses primarily on infectious diseases and cancer.
ETV Streamline SC
Birth of Anatomy (3:41)
Blood Circulation (2:08)
Germ Theory (4:38)
Vaccination (3:01)
Genetic Basis of Cancer (4:52)
HIV (05:37)
7-3.4

Inside Story: Your Body Your Health
ETV Streamline SC
Good video that covers the infectious diseases (HIV)
Infectious Preventing and Treating AIDS (6:14)
7-3.4

The Musculoskeletal System
ETV Streamline SC
This video shows the relationship between the muscular system and the skeletal system.
(24:30)
7-3.1

The Ultimate Guide: Human Body
ETV Streamline SC
This video shows how various parts of the human body work together.
Part I (24:30)
Part II (23:40)
7-3.5

Human Body Systems: The Circulatory System
ETV Streamline SC
This video describes the parts which make-up the circulatory system and their functions. 3-D graphics enhance the viewing of this video.
(23:00)
7-3.2 and 7-3.3

Human Body Systems: The Respiratory System
ETV Streamline SC
Various components of the Respiratory System are described and how they function together in the human body.
(21:00) 7-3.2 and 7-3.3

Human Body Systems: The Digestive System
ETV Streamline SC
Follow a particle of food from the mouth all the way through the entire digestive system. The breakdown of food is explained in each part of the system.
(20:00)
7-3.2 and 7-3.3

Human Body Systems: The Excretory System
ETV Streamline SC
Explanation and examination of the organs that make up the excretory system
(17:00)
7-3.2 and 7-3.3

Basics of Biology, The Human Body: Organ Systems Working Together
ETV Streamline SC
Animations show the functions of the various organ systems and how they work together.
(14:39)
7-3.1

Human Body Systems: The Nervous System
ETV Streamline SC
Describes the brain, spinal cord and nerves. Explains how these organs and tissues work together to transmit electrical impulses.
(14:39) -12 segments
7-3.2 and 7-3.3

Careers Connections

Cardiovascular Technologist.
These individuals conduct tests on pulmonary or cardiovascular systems for patients for diagnostic purposes. They may conduct electrocardiograms, cardiac catheterizations, pulmonary-functions and similar tests. An associate degree is necessary in this field.
7-3.2 and 7-3.3

Biomedical Engineer.
These individuals apply knowledge of engineering and biology to the design and development of biological products such as artificial organs, prostheses, etc. A bachelors degree is necessary for this field.
7-3.2 and 7-3.3

Biophysicist.
Individuals in this occupation research physical principles of living cells and organisms, their electrical and mechanical energy and related phenomena. A bachelors degree and beyond are required for persons entering this field.
7-3.1

Forensic Science Technicians.
A popular field today because of many TV programs. They investigate crimes by collecting and analyzing physical evidence. Knowledge of the human body is necessary for this profession. An associate degree is necessary.
7.31 , 7-3.2, 7-3.3 and 7-3.4

Biotechnologist/Genetic Engineer.
These scientists use technology to manipulate genetic material of living organism. Many are involved in changing DNA to combat many diseases (particularly non-infectious diseases). A bachelors degree is necessary.
7-3.4